AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application. The following listing provides the amended claims with the amendments marked with deleted material crossed out and new material underlined to show the changes made.

1. (Currently Amended) A computer-readable medium encoded with a data storage structure, the ~~A~~ data storage structure ~~that~~ stores a plurality of sub-networks, wherein each sub-network performs at least three output functions, wherein the data storage structure stores each sub-network indexed by a parameter derived from all output functions of the sub-network.

2. (Canceled)

3. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 1, wherein each sub-network includes a set of circuit elements, and the data storage structure stores each sub-network as

(i) an encoding of a graph that represents the topology of the set of circuit elements of each sub-network, wherein the graph includes a node for each circuit element of the sub-network,

(ii) a set of local functions that includes a local function for each node of the graph.

4. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 3, wherein the data storage structure stores, for each sub-network, an identifier that specifies the set of local functions and the graph.

5. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 4, wherein the identifier for each sub-network specifies the locations that store the set of local functions and the graph of the particular sub-network.

6. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 4, wherein the identifier for each sub-network is a set of indices that specifies the set of local functions and the graph of the sub-network.

7. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 6,

wherein the set of indices for each sub-network includes a graph index and a set of function indices,

wherein, for each sub-network, the graph index identifies the storage location of the graph for the sub-network, and each function index identifies the storage location of a local function of the sub-network.

8. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 7, wherein the storage structure is a database, and the graphs are stored in a graph table, and the local functions are stored in at least one function table, wherein each graph index specifies a record in the graph table, and each function index specifies a record in the function table.

9. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 8, wherein the local functions are stored in multiple function tables, wherein a first function table is for n-input functions, and a second function table is for m-input functions, where n and m are integers, wherein some of the function indices specify functions in the first function table while other function indices specify functions in the second function table.

10. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 4, wherein the data storage structure associates the generated parameter for each sub-network with the graph and function identifier for the sub-network.

11. (Currently Amended) A computer-readable medium that stores a computer program for processing a ~~A~~ sub-network record management system comprising:

a) a computer-readable medium encoded with a data storage structure that stores a plurality of sub-networks, wherein each sub-network is for performing at least three output functions, wherein the data storage structure stores each sub-network indexed by a parameter derived from all output functions of the sub-network; and

b) a data access manager that identifies and retrieves sub-networks from the data storage structure.

12. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 11, wherein when the data access manager receives a parameter, the manager searches the data storage structure for sub-networks that are stored based on the received parameter, and if the manager finds a sub-network that is stored based on the received parameter, the manager retrieves the sub-network.

13. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 12,

wherein each sub-network includes a set of circuit elements, and

the data storage structure stores each sub-network in terms of:

(i) an encoding of a graph that represents the topology of the set of circuit elements of each sub-network, wherein the graph includes a node for each circuit element of the sub-network,

(ii) a set of local functions that includes a local function for each node of the graph, and

for each retrieved sub-network, the manager retrieves the graph and the set of local functions of the sub-network.

14. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 13,

wherein the data storage structure stores, for each sub-network, an identifier that specifies the set of local functions and the graph, and

the data storage structure associates the generated parameter for each sub-network with the graph and function identifier for the sub-network, and

wherein the manager uses the received parameter to identify an identifier associated with the received parameter, and then uses the identified identifiers to retrieve a graph and a set of local functions.

15. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 14, wherein the manager uses the received parameter to identify a set of identifiers associated with the received parameter, and then uses the identified set of identifiers to retrieve graphs and sets of local functions that specify several sub-networks.

16. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 14, wherein the identifier for each sub-network is a set of indices that specifies the set of local functions and the graph of the sub-network.

17. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 16,

wherein the set of indices for each sub-network includes a graph index and a set of function indices,

wherein, for each sub-network, the graph index identifies the storage location of the graph for the sub-network, and each function index identifies the storage location of a local function of the sub-network.

18. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 17, wherein the storage structure is a database, and the graphs are stored in a graph table, and the local functions are stored in at least one function table, wherein each graph index specifies a record in the graph table, and each function index specifies a record in the function table.

19. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 18, wherein the local functions are stored in multiple function tables, wherein a first function table is for n-input functions, and a second function table is for m-input functions, where n and m are integers, wherein some of the function indices specify functions in the first function table while other function indices specify functions in the second function table.

20. (Currently Amended) The computer-readable medium ~~record management system~~ of claim 11 wherein:

each sub-network comprises a set of circuit elements; and

at least some of the sub-networks comprise a first circuit having a first output outside the sub-network and a second circuit having a second output outside the sub-network, wherein the first circuit receives a direct or indirect input from the second circuit.

21. (Currently Amended) The computer-readable medium ~~data storage structure~~ of claim 1 wherein:

each sub-network comprises a set of circuit elements; and

at least some of the sub-networks comprise a first circuit having a first output outside the sub-network and a second circuit having a second output outside the sub-network, wherein the first circuit receives a direct or indirect input from the second circuit.

22. (New) The computer-readable medium of claim 1, wherein each sub-network is comprised of a set of combinational logic elements of an integrated circuit (IC) design.

23. (New) The computer-readable medium of claim 11, wherein each sub-network is comprised of a set of combinational logic elements of an IC design.